Integer Factorization With A Twist

Given a positive integer (K > 2), with prime factorization:

K = p1^a1 * p2^a2 ... * pn^an (EXCLUDING 1)

Compute the following:

S = a1*p1 + a2*p2 ... + an*pn.

Input

A integer K on each line (2 <= k <= 10^15)

Take input until EOF is occured

Output

For each integer compute the S = a1*p1 + a2*p2 ... + an*pn and output it on a single line.

Example

Input:
6
7
1804289385
846930888
1681692779
1714636917

Output:
5
7
120285967
18767
360709
1008039

WARNING: More than 10000 integers in test file. Use I/O optimization too.
EDIT: All the solutions have been rejudged